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ABSTRACT

Telecommunications technologies can provide residents of rural communities with an array of educational opportunities unavailable in the past. This digest describes six programs that illustrate the range of providers, programs, and technologies that can be used to better meet the educational needs of adult learners in rural areas. The program sites are the University of Kentucky, Washington State University, Kirkwood Community College, Big Sky Telegraph at Western Montana State University, the Vermont Institute for Self-Reliance, and the Brisbane School of Distance Education. The scope of the programs ranges from associate's, bachelor's, master's, and doctoral degree programs to preschool, primary, secondary, and adult education. Barriers to providing distance education in rural areas include inadequate telecommunications infrastructure supporting distance learning technologies, socioeconomic factors, inexperience in the use of distance learning technologies, and limited availability of programming that matches the needs of rural learners. If these barriers can be overcome by coupling advances in distance learning technologies with innovative programming, educational providers can link rural communities to the training and continuing education programs they need to compete in the Information Age. The digest includes descriptions of 13 organizations, networks, and clearinghouses pertinent to distance learning in rural areas and 47 additional sources of information. (KS)

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DISTANCE LEARNING TECHNOLOGIES LINK ADULTS TO EDUCATIONAL PROGRAMMING, OPPORTUNITIES

RURAL CLEARINGHOUSE DIGEST
Vol. 1, No. 2 - June 1994

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Office of Educational Research and Improvement
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RURAL CLEARINGHOUSE
DIGEST

VOL. 1, NO. 2
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Rural Clearinghouse for Lifelong Education and Development College of Education, Kansas State University

Distance learning technologies link adults to educational programming, opportunities

Telecommunications technologies can provide residents of rural communities an array of educational opportunities unavailable in the past. Pharmacists in rural Kentucky can earn a second professional degree through videotaped courses. Adult basic education (ABE) students in Vermont can improve basic skills by attending classes taught via interactive television or through videotape. Teachers in Montana can learn how to use the Internet by taking online courses.

Advancements in interactive television, video production, and microcomputer telecommunications technologies have made distance learning programs more interactive, more interesting, and easier to produce and deliver. "The expansion of telecommunication capabilities nationwide will allow us to make educational programs available in rural areas that haven't been available there in the past," commented Muriel Oaks, Director of Extended University Services at Washington State University. "The kind of distance education techniques we have now with video and the interactivity available with telephone and electronic mail means that you can take the educational program to students and still provide quality academic programs."

Over the past 20 years, pioneers in the use of telecommunications to deliver distance learning have expanded their programs and an increasing number of educational providers at all levels are now using telecommunications to reach adult learners. The following six programs illustrate the range of providers, programs, and technologies that can be used to better meet the educational needs of adult learners in rural areas:

The **University of Kentucky** has been a pioneer in the delivery of graduate programs via telecommunications, broadcasting the first graduate level course for credit to multiple locations. Residents of Kentucky can earn a master's degree in mining engineering (also available in Pennsylvania and West Virginia), family studies, or special education through one-way video/two-way audio classes delivered via satellite transmission. The University of Kentucky also offers Ed.D. programs in Educational Administration and Higher Education through interactive television classes delivered via compressed video to four Kentucky community college sites. The Extended Campus Ed.D. program recently received a Credit Certificate of Special Commendation from the Division of Education Telecommunications of the National University Continuing Education Association (NUCEA). The nontraditional Pharm.D. program delivers videotaped classes to rural pharmacists in Kentucky and five other states.

Washington State University was recently recognized by the National University Continuing Education Association (NUCEA) for its Bachelor of Arts in Social Sciences program. In the last two years residents of 22 communities in 16 rural counties in the state of Washington have been able to complete the last two years of their bachelor's degree solely through distance education means. The program is also available nationwide through the Mind Extension University satellite distribution system.

Kirkwood Community College in Cedar Rapids, Iowa has been providing distance learning opportunities for residents of a seven county, 4300 square mile area for over ten years. Students may complete an associate's degree in just two years exclusively through live interactive classes. Each semester, Kirkwood has over 1800 student enrollments in live interactive classes. Additionally, students may enroll in open learning labs located in county learning centers.

By offering free access and online lessons to anyone, anywhere, anytime, **Big Sky Telegraph** has helped many rural residents come online. Based at Western Montana State University, Big Sky Telegraph also acts as a clearinghouse of K-12 telecurricular activities and was recently awarded a grant from the US WEST Foundation and Annenberg/CPB to develop a library of math and science lessons. Big Sky Telegraph also promotes community networking interests, providing Internet e-mail accounts for $50.00 along with free lessons and training for people who want to learn more about the Internet. Within the next six months, Big Sky Telegraph will be offering full Internet access for $50.00 a year which will include customized gopher menus, telnet menus, and other advanced full Internet activities.

The **Vermont Institute for Self-Reliance** produces 2-3 interactive television adult basic education (ABE)

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Distance learning

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courses a year. The courses are then edited, packaged with study materials, and sent to students through the mail. The courses are also shown on public access television. "Although the initial development costs are high, the courses serve approximately 100 learners live and many hundreds more through tapes and narrowcasting," explained Gail Dowling.

The **Brisbane School of Distance Education** in Australia serves preschool children; home-based, as well as school-based, primary and secondary students; and adults who are returning to school or need to improve their basic skills. Course materials include printed instruction papers, audio and videotape materials where appropriate, and books. Students keep in touch with their instructors primarily through phone calls. Through the Extension Services Program, students participate in tutorials (secondary students only) conducted at various centers around the state, activity days, camps, and home visits. Support programs are also provided for home tutors. "I argue that because of distance education the door to school is never shut because, through our school, students may return to school at any age," said S. R. Rasmussen, Principal of the Brisbane School of Distance Education.

By making continuing education more accessible, distance learning programs have increased educational opportunities in rural areas. Yet it is important to recognize that many barriers to education still exist. These barriers include inadequate telecommunications infrastructures to support distance learning technologies, socio-economic barriers, inexperience in the use of distance learning technologies, and the limited availability of programming which matches the needs of rural learners.

Many rural areas lack the telecommunications infrastructure necessary to support interactive distance learning. The rural areas most in need of expanded access to educational programming are often the least able to afford both the initial costs of purchasing and installing distance learning technologies and the continued costs of accessing programming. As a result, many rural residents live far away from learning centers equipped to receive programming via satellite, ITFS transmission, or fiber optic networks. Additionally, rural schools, community organizations, and individuals often find that Internet access through a commercial online service is either impossible or too expensive.

"Right now providing electronic mail access, for example, is much more difficult if you live in a rather isolated area, at least in our state," explained Oaks. "We have a lot of areas in the state that simply don't have the kind of telephone switching capability that will allow a student to have a computer and a modem and hook in and gain access to the 'Information Superhighway.' I think we need to work on the telephone companies to make sure that people in rural communities have that kind of capability. They need it as much or more than anybody in terms of bridging that gap, and right now I don't think that is a very high priority of the telephone companies in most areas of the country."

Although advancements in distance learning and microcomputer technologies have greatly expanded the educational opportunities available in rural areas, the capacity of these technologies to link rural communities and rural adults with one another has not been utilized.

Communities whose telephone lines allow microcomputer telecommunications can reduce their access costs to the Internet by using a regional provider or forming a community network server. As a regional provider, Big Sky Telegraph has provided communities in Montana with low-cost Internet e-mail access. Big Sky Telegraph also supports communities in their efforts to develop local community network servers which provide affordable Internet e-mail access. Through community network servers, it is possible to search databases and archives by storing and forwarding search requests. As residents become more proficient in the use of e-mail, uploading and downloading files, distributed conferencing, and the use of menu-driven and/or graphical knowledge access Interfaces, they may wish to upgrade their system. An increasing number of systems now allow upgrading to full Internet capabilities. Local systems also offer the advantage of providing community information and networking capabilities.

Even with improved and more affordable access to the National Information Infrastructure, many rural adults, especially the educationally disadvantaged, will remain disconnected from electronic communication. "Although computer costs continually decrease, computer access will still be limited for our population. Phone access, as well, is a problem for many educationally disadvantaged adults," said Gail Dowling. "Consequently, the benefits of telecommunications applications will be lost."

As more rural areas become linked to the telecommunications infrastructure, instructors, administrators, and learners will have to be trained to use distance education technologies. Instructors should be trained in facilitating interactivity and in operating the technology. Learners also need to be trained to effectively use interactive technologies. For many adults, their apprehensiveness toward telecommunications technology and/or their lack of experience may limit or totally prevent their participation in microcomputer telecommunications. "An assumption prevails that the Internet is self-teaching. In fact, the greater cost of the Internet is not the connection, but the training required to fully benefit," stated Frank Odasz, Director of Big Sky Telegraph. Microcomputer telecommunications training and friendly online support can bring new users online and alleviate their frustration and anxiety.

Although advancements in distance learning and microcomputer technologies have greatly expanded the

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Distance learning

Organizations & Clearinghouses

United States Distance Learning Association (USDLA)
Box 5129
San Ramon, CA 94583
(510) 820-5845

The United States Distance Learning Association promotes the development and application of distance learning technology to education and training. The USDLA address K-12 education, higher education, continuing education, and corporate training. Several publications, including the *Funding Sourcebook for Distance Learning and Educational Technology*, are available.

ERIC Clearinghouse on Information and Technology
Syracuse University
4-194 Center for Science and Technology
Syracuse, NY 13244-4100
(800) 464-9107

The ERIC Clearinghouse on Information and Technology provides information on library science and education technology, including distance learning technologies, and will conduct free searches on these topics.

ERIC Clearinghouse on Rural Education and Small Schools
Appalachia Educational Laboratory
1030 Quarrier Street
P.O. Box 1348
Charleston, WV 25325-1348
(800) 624-9120

ERIC/CRESS provides information on educational programs and practices dealing with rural residents, small schools, American Indians, migrant education, Mexican Americans, and outdoor education. The Clearinghouse will conduct free searches of the ERIC database on any of the topics covered by the Clearinghouse.

Rural Clearinghouse for Lifelong Education and Development
Kansas State University
111 College Court
Manhattan, KS 66506-6001
(913) 532-5560

The Rural Clearinghouse is the only national organization focusing on rural adult education. The Clearinghouse's bimonthly newsletter, the *Rural Adult Education FORUM*, highlights new resources and model programs in all areas of adult education, including distance learning.

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educational opportunities available in rural areas, the capacity of these technologies to link rural communities and rural adults with one another has not been utilized. Strategies which encourage rural adults to understand better their local community contexts and to share information with those in other rural communities are extraordinarily important. Technology needs to be used in ways that strengthen the human infrastructure in rural areas rather than displacing it with resources outside of the community. Program planning which invites the participation of rural constituencies can help ensure that both the information shared and the linkages created are meaningful to those living in rural communities.

As Gail Dowling, Director of the Vermont Institute for Self-Reliance, observed, "Distance education can be isolating for learners who are already isolated, and every effort must be made to bring learners together, either face to face or through the distance education technologies. To extend educational access and retain learners, the challenge lies in creative course development that brings interactivity where it might seem impossible."

As the National Information Structure expands to include rural America, greater access to educational programming via distance learning technologies will enable rural adults to keep their skills up-to-date in a rapidly changing world. "This whole concept of National Information Structure or National Information Highway will do a great deal to accelerate educational access in rural areas," said Nofflet Williams, Associate Dean of University Extension at the University of Kentucky. "For instance, we are working now in conjunction with state agencies and the state government to be part of what we call a T-1 backbone that will connect many of the areas within the state together and make it possible to deliver courses to medium-sized or rural communities."

As the rate of technological change continues to accelerate, the need for continuing education and training will also increase. "Because of the rapid transformation of society and the way we go about doing business with the changes in technology, people are going to have to have an ongoing pathway to access education," said Rich Gross, Dean of Telecommunications, Kirkwood Community College. "Distance learning is probably the most efficient and practical way to do that."

In the future, an increasing number of distance learning programs may be delivered to learners in their homes or workplaces. "I think the wave of the future is not only classroom to classroom communication, but to look for ways to develop desktop to desktop educational communication," explained Gross.

By coupling advancements in distance learning technologies with innovative programming, educational providers can link rural communities to the training and continuing education programs they need to compete in the Information Age.

The Rural Clearinghouse for Lifelong Education and Development, a national effort to improve rural access to continued education, serves community and state colleges, universities, cooperative extensions, libraries, schools, rural health advocates, community based organizations, and community/economic development providers.

Rural Clearinghouse Digests are published occasionally by the Rural Clearinghouse for Lifelong Education and Development. Upon publication, subscribers to the *Rural Adult Education FORUM* receive a complimentary copy. Additional copies are available for $5.00.

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Consortia, Networks, and Organizations

Editor's note: The following consortia, networks, and organizations provide programming and/or support services to distance learning providers, instructors, and adult learners. Due to space limitations, we were unable to include all distance learning consortia and networks. In addition to the consortia and networks listed, there are a number of organizations which reach learners in more limited geographic areas (i.e. statewide networks) or focus on delivering programming to secondary schools rather than adults.

AG*SAT
1800 N. 33rd St.
P.O. Box 83111
Lincoln, NE 68501
(402) 472-3611

The Agricultural Satellite Corporation (AG*SAT) is a national consortium of land grant universities which provides distance learning programs and services related to agriculture, food and nutrition, natural resources and environment, communities, families, and youth.

Big Sky Telegraph
Western Montana College
710 S. Atlantic
Dillon, MT 59725-3598
(406) 683-7870

Big Sky Telegraph provides online courses on microcomputer telecommunications and supports community networking interests. (See page 1 for more information.)

Electronic University Network
1977 Colestin Rd.
Hornbrook, CA 96604
(503) 482-5871
e-mail EUN-Learn@aol.com (Internet)
or EUN-Learn (America Online)

The Electronic University Network (EUN) provides online undergraduate and graduate courses and degree programs. Through America Online, a commercial computer network, EUN provides virtual student services in addition to classes.

International University Consortium
University of Maryland University College
University Blvd at Adelphi Road
College Park, MD 20742-1660
(301) 985-7811

The International University Consortium (IUC) offers a broad range of courses in general management, health-care management, liberal studies, and American Studies.

The Kentucky Network (KET)
Enterprise Division
560 Cooper Drive
Lexington, KY 40502-2200
(800) 534-9067

KET produces educational videos and teleconferences including the award-winning KET/GED series. In addition to adult basic education programming, KET also produces programming for ABE staff development, business, and elementary and secondary education.

Mind Extension University
9697 East Mineral Avenue
P.O. Box 3309
Englewood, CO 80155-3309
(800) 777-6463

Mind Extension University (ME/U) provides distance learning programs through cable and satellite television and through videotape distribution. Bachelor's degree completion programs are offered through Regis University and the National Universities Degree Consortium (NUDC), a consortium of ten major land grant and state universities. Students may complete undergraduate degrees through NUDC member institutions in animal sciences and industry, social sciences, and management. Students may also complete a bachelor's degree in business administration from Regis University. ME/U also delivers graduate programs in business administration, education and human development, and library science. Graduate level certificate programs in early reading instruction, teaching at risk learners, and quality improvement are available.

National Technological University
700 Centre Avenue
Fort Collins, CO 80526
(303) 495-6414

The National Technological University offers programs from its 43 member universities which arrange for transfer of credits and grades to National Technological University. Usually classes are offered through the workplace. Graduate programs are offered in computer engineering, computer science, electrical engineering, engineering management, hazardous waste management, health physics, management of technology, manufacturing system engineering, materials science engineering, and software engineering.

Tribal College Consortium
c/o Rocky Mountain College
Billings, MT 59012
(406) 657-1020

The Tribal College Consortium serves the Native American community in Montana. Through telecommunications, the three participating tribal colleges share courses.

Western Cooperative for Educational Telecommunications
WICHE
P.O. Drawer P
Boulder, CO 80301-9752
(303) 541-0233

The Western Cooperative for Educational Telecommunications was established by the Western Interstate Commission for Higher Education (WICHE) in order to increase access to educational resources. The Western Cooperative works to improve the quality and efficiency of educational telecommunications systems and distance learning programs in a fifteen-state region. The 150-member cooperative includes corporations, elementary/secondary agencies and institutions, postsecondary institutions, statewide higher education governing/coordinating agencies, nonprofit organizations, and public broadcasting organizations. New publications are available on planning library integration into distance learning programs, ITFS leasing, rural telemedicine, the New Pathways to a Degree program, and the opportunities and challenges for educational telecommunications in Western states. Contact the Western Cooperative for a complete listing of publications and prices.